

NAVY Transition Assistance Program

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NEED & CUSTOMER REQUIREMENT

Need: Advanced sensor systems utilized in Unmanned Aerial Systems (UAS) produce large amounts of raw data that can overwhelm on-board air-to-ground communications systems. The controllers of a UAS mission need this data information quickly in order to take action against the threats while the UAS remains in flight. A system for processing and disseminating the data in real-time is needed.

Value to the Warfighter: With the receipt of real-time data concerning threats, the warfighter is able to determine the immediate appropriate response, thus potentially saving lives and property.

Operational Gap: Current performance of hyperspectral data acquisition generates large amounts of data that exceed the bandwidth of air-to-ground communication channels, and must be analyzed post-mission. This causes a significant latency in threat identification. The Navy wants to reduce this latency to near real-time.

Customer Specifications: Ground resolution as good as 4-6 inches per camera pixel. UAS will operate in level flight at an altitude of 500 feet for a mission lasting between 5 and 8 hours.

Technology Description: DSPCon Inc. proposes an innovative system that can identify targets in real-time, by coupling a hyperspectral sensor with a high-speed processor embedded on the UAS platform. The raw data collected from the sensor is processed on-board the UAS to extract critical target information. The compressed images contain only the most critical target information, and are designed to be easily carried within the bandwidth capabilities of the platform's air-to-ground transmitter in near real-time.

TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Integration and test of software algorithms	2	Low	Successful laboratory test of algorithm on benchtop prototype	4Q/2010
Complete electrical design of OHCS modules	3	Moderate	Generation of final schematic	4Q/2010
Validate design of chassis mount	4	Moderate	Successful validation integrated OHCS chassis and system components	1Q/2011
Embedded system software design	4	Moderate	Successful lab demonstration	2Q/2011
Complete full system test	5	High	Consistent detection of test target	3Q/2011

Open contract: N68335-08-C-0558 ending November 23, 2011

N08-155 - DSPCon

Real-time Spectral Band Optimization for Unmanned Aerial Systems (UAS) Hyperspectral Camera

SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: NAVAIR

Transition Target: PMA 264 Air ASW, PMA-263

Original Sponsoring Program: PMA-290 (Maritime Patrol and Recon Aircraft)

TPOC Phone Number: (301) 342-2094



TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications: DSPCon specifically targets the Silver Fox Unmanned Aerial Vehicle (UAV) that has already been deployed by the Navy and Marines in Iraq, South America, and the Philippines, and which can also be widely deployed with both U.S. and allied ground forces. This system can be deployed by all branches of the military to support combat forces by helping to quickly identify targets and threats. Other uses include environmental monitoring on military bases (for example, to comply with the federally mandated Sikes act).

Business Model: DSPCon intends to license the technology or partner with appropriate prime contractors for use in Department of Defense (DoD) Unmanned Aerial Vehicle (UAV) applications, as well as for environmental monitoring applications.

Objective: DSPCon is seeking prime contractor support for testing and deploying our technology on the Silver Fox and other UAV platforms.